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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/568,771 | 02/21/2006 | Philippe-Luc Bres | 4702-39 | 6682 |
| 23117 | 7590 | 12/01/2008 | EXAMINER | |
| NIXON & VANDERHYE, PC | | | HINDENLANG, ALISON L. | |
| 901 NORTH GLEBE ROAD, 11TH FLOOR | | | ART UNIT | PAPER NUMBER |
| ARLINGTON, VA 22203 | | | 4151 | |
| MAIL DATE | | DELIVERY MODE | | |
| 12/01/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|------------------------------------|
| Office Action Summary | Application No. 10/568,771 | Applicant(s) BRES ET AL. |
| | Examiner ALISON HINDENLANG | Art Unit 4151 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 October 2008.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-15 and 17-24 is/are pending in the application.

4a) Of the above claim(s) 1-14 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 15 and 18-24 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-166/08)
Paper No(s)/Mail Date 2/21/2008

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group IV, claims 15-24, in the reply filed on 10/30/2008 is acknowledged.

2. Claims 1-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected composition and processes, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/30/2008.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it contains 260 words. Correction is required. See MPEP § 608.01(b).

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

5. Claim 15 is objected to because of the following: the phrase "wherein the pre-expanded beads are expandable and in particular capable of subsequent expansion without the addition of a fresh quantity of blowing agent" (lines 6 and 7) is unclear. While the phrase in question is taken almost word for word from the specification (page 13, lines 8-10) there is no disclosure as to how this might occur. In fact, the specification teaches that "the objects expanded in this way generally have a density substantially identical to the bulk density of the pre-expanded beads"

(page 16, lines15-17), and bulk density is the only measure given for determining expansion. This contradicts the assertion that the pre-expanded beads are as claimed, expandable. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 19, 20, 22, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

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9. In the present instance, claim 19 recites the broad recitation "from 0.7 to 2.9 parts", and the claim also recites "from 0.9 to 2.8 parts" and "from 1.0 to 2.7 parts" which are the narrower statements of the range/limitation.

10. In the present instance, claim 20 recites the broad recitation "from 1.6 to less than 3.0 parts", and the claim also recites "from 1.7 to 2.9 parts" and "from 1.8 to 2.8 parts" and "from 1.9 to 2.7 parts" which are the narrower statements of the range/limitation.

11. In the present instance, claim 22 recites the broad recitation "from 0 to 0.35 parts", and the claim also recites "from 0 to 0.3 parts" and "from 0 to 0.25 parts" which are the narrower statements of the range/limitation.

12. In the present instance, claim 24 recites the broad recitation "from 45 to 180 g/l", and the claim also recites "from 60 or 50 to 150 g/l" and "from 60 or 50 to 125 g/l" which are the narrower statements of the range/limitation.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 15 and 18-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Berghmans (US 6538042).

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15. With respect to claim 15, Berghmans teaches:

Pre-expanded beads ("pre-expanded particles", example 4 column 9, line 28) having a bulk density chosen from a range of from 40 to 190 g/l ("a bulk density d of 125 kg/m³", column 9, line 32) and containing by weight:

- (a) 100 parts of a polymer of styrene, ("3680 gram styrene", column 8, line 20)
- (b) from 0.5 to less than 3.0 parts of at least one blowing agent and ("62 gram pentane... 1.6% by weight pentane", column 9, lines 16-18)
- (c) from 0 to 0.4 part of at least one plasticising agent: ("0.25% wt white oil", column 8, line 22)

wherein the pre-expanded beads are expandable and in particular capable of subsequent expansion without the addition of a fresh quantity of blowing agent.

16. Berghmans does not explicitly teach "wherein the pre-expanded beads are expandable and in particular capable of subsequent expansion without the addition of a fresh quantity of blowing agent." However, the composition disclosed would inherently support further expansion as blowing agent remains in the pre-expanded particles.

Further more examiner wishes to point out to applicant that claim 15 is directed towards a product and as such will be examined under such conditions. The process of using the product, as recited in the section of claim 15 quoted above, is viewed as recitation of intended use and is given no patentable weight (Please see MPEP 2114 R1-2115 R2 for further details). It would have been obvious to one of ordinary skill in the art at the time of the invention that the remaining blowing agent could be used to further expand the particles.

17. With respect to claim 18, Berghmans teaches:

wherein the blowing agent is chosen from linear or branched (cyclo)alkanes having in particular from 4 to 6 carbon atoms. ("volatile organic blowing agents are well known in the art and are typically C₂-C₆ aliphatic organic blowing agents, such as ... cyclohexane", column 3, lines 42-45)

18. With respect to claim 19, Berghmans teaches:

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wherein they contain from 0.7 to 2.9 parts, preferably from 0.9 to 2.8 parts, more particularly from 1.0 to 2.7 parts by weight of at least one blowing agent. ("the amount of volatile organic blowing agent in the particle ... is 2.0% by weight or less, based on the amount of polyvinylarene", column 3, lines 36-38)

19. With respect to claim 20, Berghmans teaches:

wherein they contain from 1.6 to less than 3.0 parts, preferably from 1.7 to 2.9 parts, more particularly from 1.8 to 2.8 parts, especially from 1.9 to 2.7 parts by weight of at least one blowing agent. ("the amount of volatile organic blowing agent in the particle ... is 2.0% by weight or less, based on the amount of polyvinylarene", column 3, lines 36-38)

20. With respect to claim 21, Berghmans teaches:

wherein the plasticising agent is chosen from mineral oils, white oils, paraffin waxes and Fischer-Tropsch waxes. ("the expandable and/or pre-expanded particles may also contain ... plasticizer such as white oil", column 6 lines 20-23)

21. With respect to claim 22, Berghmans teaches:

wherein they contain from 0 to 0.35 part, preferably from 0 to 0.3 part, more particularly from 0 to 0.25 part of at least one plasticising agent. ("0.25% wt white oil", column 8, line 22)

22. With respect to claim 23, Berghmans teaches:

wherein they have a size or a diameter chosen from a range of from 0.5 to 3.5 mm. ("the expandable polyvinylarene particles suitable have an average particle size of 0.2-3.0 mm" column 5, lines 35-36)

23. While Berghmans does not disclose the diameter range of the pre-expanded particles the particles disclosed would inherently have diameters from within the range of the instant claim because Berghmans discloses expandable particles with the same diameter range, bulk density, and composition as the expandable beads of the instant application as well as pre-expanded particles with the same bulk density and composition.

24. With respect to claim 24, Berghmans teaches:

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wherein they have a bulk density chosen from a range of from 45 to 180 g/l, preferably from 60 or 50 to 150 g/l, in particular from 60 or 50 to 125 g/l. ("a bulk density d of 125 kg/m³", column 9, line 32)

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

27. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghmans (US 6538042) as applied to claim 15 above, and further in view of Paleja (US 5686497).

28. With respect to claim 17, Berghmans does not teach:

wherein the polymer of styrene has a mean molecular mass by weight, M_w, chosen from a range of from 150 000 to 300 000 daltons, and preferably molecular weight

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distribution, calculated by the ratio of Mw to the mean molecular mass by number, Mn, of the polymer, chosen from a range of from 1.8 to 2.6.

29. In the same field of endeavor, expandable styrene beads, Paleja teaches "having a weight average molecular weight (M_w) in the range of 130,000 to 180,000 but may also be a grade having an M_w in excess of 180,000, say up to 500,000" (column 2, lines 42-45) for the purpose of increasing material strength. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the product taught by Berghmans by using the starting materials taught by Paleja for the purpose of increasing the strength of the material.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Carlier (US 6271272) discloses similar expandable polystyrene beads.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALISON HINDENLANG whose telephone number is (571) 270-7001. The examiner can normally be reached on Monday to Thursday 7:30 - 5 pm; Every other Friday 7:30 - 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on 571-272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert B. Davis/
Primary Examiner, Art Unit 1791
For Angela Ortiz, SPE AU 4151
11/21/08

ALH